**Slinky and M & M’s Activity**

x = # of M & M’s, units are M & M’s

y = distance from bottom of cup to the floor, units are cm.

Do not allow students to get the cup to fully sit on the floor. The cup should be just barely touching the floor.

Use the model to make predictions, then use predictions to test the model.

Have students complete the activity. At this point they should know how to enter the data into the lists, create a scatterplot, and come up with an equation. They should be able to complete this activity with little instruction or supervision.

**Next Steps:**

Turn off the STAT PLOT and have students round their values for m and b to the hundredths place.

They will then use their calculators to find both the x- and y-intercepts.

x-intercept: represents no distance between the cup and the floor, where y=0.

y-intercept: represents no M & M’s in the cup and the length of both the cup and the slinky from the bottom of the cup to the paint stick.

Set the window on the calculator:

x-min: set to -5 so you can see the y-axis

x-max: set to 65

y-min: set to -5 so you can see the x-axis

y-max: set to 55 to see the y-intercept

The x-intercept is called the zero of the function because y equals zero at this point.

Use 2nd and trace to find the important pieces of the graph. This will help you to find the zero of the function.

Finding Zeros: 2nd, Trace, #2 (zeros), find the left and right bounds (pick points above and below the x-intercept on the x-axis by moving the cursor. Press enter when you find these points). The calculator will then show “Guess?” on the screen, press enter and the calculator will give you x’s value and y=0 at the x-intercept.

Discuss with students their predictions for the number of M & M’s needed to get the cup to touch the floor and the distance of cup when no M & M’s are in the cup. What are possibilities for differences between the predictions and the actual number of M & M’s needed to touch the floor? Does human error come into play? What are different ways human error can affect the data results and predictions?

Extensions:

For the higher level students: have them use peanut M & M’s instead of regular M & M’s since they are not uniform in size. This will create data that will not create as straight of a line forcing students to a deeper understanding of finding a line of best fit. They can then compare their slopes, y-intercepts, and predictions between the groups of students.